

REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Upon entry of this amendment, claims 1-23 will be pending. By this amendment, claims 1, 6, 10, 13, 16, and 20 have been amended. No new matter has been added.

§ 103 Rejection of Claims 1-5 and 10-23

In Section 2 of the Office Action, claims 1-5 and 10-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki (U.S. Patent No. 6,493,743; hereinafter referred to as “Suzuki ‘743”) in view of Suzuki (U.S. Patent No. 6,601,139; hereinafter referred to as “Suzuki ‘139”). Claims 1, 10, 13, 16, and 20 have been amended to clarify and to round out the scope of protection to which Applicant is entitled.

In the Background section of the Specification, it was disclosed that “[w]hen activating application software and making an access to a data file or a database, such an information-processing apparatus forms a judgment as to whether the application software, the data file or the database are stored in the internal or external storage unit. The information-processing apparatus carries out an operation according to the outcome of the judgment. In order to activate application software stored in an external storage unit such as a memory card, for example, the user first carries out an operation to request that the application software be loaded from the memory card. After the application software has been loaded, it is necessary for the user to carry out an operation to activate the loaded software. ... The operations are cumbersome for the user. In addition, since the user must always know whether the target information is stored in the internal or external storage unit, the operations are not simple either. Thus, the information-

processing apparatus cannot be said to offer good operatability. ... In addition, in the case of a portable and compact information-processing apparatus such as a PDA, the size of the internal storage unit is unavoidably limited. Thus, when an application program is installed in the internal storage unit, the storage area becomes full in many cases. ... When the user wants to further add (or install) a new application program in such a circumstance, the user needs to delete or save an already installed program or an already installed data file in another storage medium in order to secure a storage area in the internal storage unit. The already installed application program or data file to be saved may be a program no longer needed or not used frequently. Then, it is necessary to carry out an operation to add the new application program to the existing software by installing the program in the secured storage area. ... However, stress is much developed in the user by the fact that it is difficult as well as cumbersome to carry out the work to form of a judgment as to whether or not an already installed application program or data file is still required, the fact that it takes labor to carry out the work of deleting an existing application program or data file no longer required or used infrequently and the fact that the work to set a location for saving an application program or a data file and to set a connection to the location is troublesome. It takes also much time to carry out these works. The user's stress and the much time caused by these works are a problem.” *Background of the Specification, page 2, line 8 to page 3, line 3; and page 3, line 19 to page 4, line 22.*

To address the above-described shortcomings of the conventional method and apparatus for information processing, embodiments of the present invention include improved methods and apparatus for information processing.

For example, the structure of an information processing apparatus in claim 1, as presented herein, includes:

“An information-processing apparatus comprising:

storage means for storing application programs and data files;

calculating means for activating an application program stored in said storage means to carry out a predetermined processing;

media drive means for recording and playing back information into and from an external recording medium, said media drive means including an application program; and

control means for controlling said media-drive means and said storage means when said external recording medium for recording an application program is mounted on said media drive means, wherein,

when said storage means includes a remaining free storage area with a size large enough for accommodating said application program in said external recording medium,

said application program in said external recording medium is installed in said storage means, but

when said storage means includes a remaining free storage area with a size not large enough for accommodating said application program in said external recording medium,

an application program and/or a data file stored in said storage means is saved to said external recording medium in order to allocate enough free storage area in said storage means to accommodate said application program in said external recording medium, and said application program in said external recording medium is installed in said storage means once there is enough free storage area in said storage means to accommodate said application program.”

(emphasis added)

Accordingly, in one aspect of claim 1, when the storage means includes a remaining free storage area with a size not large enough for accommodating the application program in the external recording medium, an application program and/or a data file stored in the storage means is saved to the external recording medium in order to allocate enough free storage area in the

storage means to accommodate the application program in the external recording medium, and the application program in the external recording medium is installed in the storage means once there is enough free storage area in the storage means to accommodate the application program.

This aspect is disclosed in following paragraphs of the Specification. “On the other hand, FIG. 31 shows a flowchart representing processing which is started by the so-called hot plug-in function at a time the memory card 70 is inserted into the memory slot 7. As shown in FIG. 31, the flowchart begins with a step F101 to form a judgment as to whether or not insertion of the memory card 70 into the memory slot 7 has been detected. If insertion of the memory card 70 into the memory slot 7 has been detected, the flow of the processing goes on to a step F102 at which the CPU 22 finds the total size of an application program and a data file DT relevant thereto to be loaded from the memory card 70 as well as finds the total size of free storage areas in the D-RAM 24. The CPU 22 compares the total sizes with each other.”

“If the total size of an application program and a data file DT relevant thereto to be loaded from the memory card 70 is found not greater than the total size of free storage areas in the D-RAM 24, the flow of the processing goes on to a step F106 at which the application program and the data file DT relevant thereto are loaded into the D-RAM 24 from the memory card 70.”

“At the next step F107, the activation-history table is updated for the newly installed application program. To be more specific, a new entry for the newly installed application program is created in the activation-history table and the activation count as well as the temporary attribute of the new entry are each set at 1. ... At the next step F108, the CPU 22 executes the application program to carry out processing based on the program. ... If the result of the comparison at the step F102 indicates that the total size of an application program and a data

file DT relevant thereto to be loaded from the memory card 70 is greater than the total size of free storage areas in the D-RAM 24, on the other hand, the flow of the processing goes on to a step F103 at which the CPU 22 searches the activation-history table for an application program with a smallest activation count. ... At the next step F104, the application program with a smallest activation count is saved to the memory card 70 and deleted from the D-RAM 24 to create a free storage area. ... At the next step F105, the save flag for the saved application program in the activation-history table is set.”

“The flow of the processing then goes back to the step F102 at which the CPU 22 finds a new total size of free storage areas in the D-RAM 24 and compares the new total sizes with the total size of an application program and a relevant data file DT, which are stored in the memory card 70. ... If the total size of an application program and a data file DT relevant thereto is found not greater than the total size of free storage areas in the D-RAM 24, the flow of the processing goes on to the step F106 to repeat the same pieces of processing of the step F106 and the subsequent steps. If the total size of an application program and a data file DT relevant thereto is found greater than the total size of free storage areas in the D-RAM 24, on the other hand, the flow of the processing goes on to the step F103 at which pieces of processing of the step F103 and the subsequent steps are carried out again. That is to say, the CPU 22 searches the activation-history table for an application program with a smallest activation count, saves the application program from the D-RAM 24 to the memory card 70 and updates the activation-history table before going back to the step F102. ... It should be noted that, at the step F103, the activation-history table is searched for an application program without a save flag.”

“As described above, if a free storage area with a sufficient size is not available in the D-RAM 24, the pieces of processing at the steps F102 to F105 are carried out repeatedly to

sequentially save application programs and data files DT relevant thereto in an order of increasing application counts, starting with an application program with a smallest application count till a free storage area with a sufficient size is allocated in the D-RAM 24.”

“As a free storage area with a sufficient size is secured in the D-RAM 24, the flow of the processing goes on to a step F106 and the subsequent steps at which an application program and a data file DT relevant thereto are loaded into the D-RAM 24 from the memory card 70, the activation-history table is updated for the newly installed application program and the application program is executed to carry out processing based on the program. ... As described above, when the memory card 70 is mounted, an application program stored in the memory card 70 is automatically installed in the D-RAM 24 and executed. At that time, it is neither necessary for the user to worry about the availability of a free storage area in the D-RAM 24 nor necessary to carry out an operation to delete an application program from the D-RAM 24 or save an application program from the D-RAM 24 to the memory card 70.”

“The above description does not include an explanation of processing that can be carried out by the user as long as the memory card 70 is mounted on the information-processing apparatus 1 and as long as an application program loaded from the memory card 70 remains installed in the D-RAM 24. Examples of the processing include an operation carried out by the user to halt the execution of the application program and an operation to re-invoke a temporarily suspended application program. ... The flow of the processing then goes on to a step F109 to form a judgment as to whether or not the user has carried out an operation to eject the memory card 70. If the user carried out an operation to eject the memory card 70, the flow of the processing goes on to a step F110. ... At the step F110, the CPU 22 uninstalls application programs and their data files for which the temporary attributes are set. Application programs

and their data files for which the temporary attributes are set are application programs and data files loaded from the memory card 70. Uninstallation of an application program and a data file thereof means restoration of the application program and the data file thereof to the memory card 70 and their deletion from the D-RAM 24. The uninstallation results in a free storage area in the D-RAM 24. Thus, the CPU 22 is capable of restoring application programs and their data files for which the save flags are set to the D-RAM 24. Application programs and their data files for which the save flags are set are application programs and data files saved to the memory card 70. ... As the application programs and their data files are restored to the D-RAM 24, the save flags are reset. As a result, the D-RAM 24 is restored to a state which existed before the memory card 70 was mounted on the information-processing apparatus 1.

“By virtue of the processing carried out as described above, the user is capable of using an application program without worrying about memory resources offered by the D-RAM 24. As a result, there is exhibited an effect of implementation of extremely comfortable operations developing no stress. ... In addition, when a memory card 70 is mounted, an application program is installed and, when the memory card 70 is dismounted, the application program is uninstalled so that the D-RAM 24 is returned to a state prior to the mounting of the memory card 70. As a result, the user is allowed to carry out intuitive operations and enjoy noticeably improved operatability. In addition, since the user is capable of using an application program stored in the memory card 70 without being aware of the capacity and the status of the D-RAM 24 at all, the user is given noticeably enhanced convenience.” *Specification, page 70, line 20 to page 77, line 22.*

By contrast, it was stated that Suzuki ‘743 fails to disclose that when the storage means includes a remaining free storage area with a size not large enough for accommodating the

application program in the external recording medium, an application program and/or a data file stored in the storage means is saved to the external recording medium in order to allocate enough free storage area in the storage means to accommodate the application program in the external recording medium.

Further, Suzuki '139 only teaches that "[t]he BMAP may be stored in a part of the flash memory 13 or may be stored separately in a ROM such as an Electrically Erasable Programmable Read-Only Memory (EEPROM). In any case, the BMAP or the flash memory 13 is directly connected to a CPU bus and an executable memory space is allocated for the BMAP. The BMAP consists of an independent and fixed program which does not depend at all upon system software and application software stored on the removable disk." Suzuki '139, column 7, lines 56-65.

Suzuki '139 fails to teach or suggest moving an application program and/or a data file stored in the storage means to the external recording medium in order to allocate enough free storage area in the storage means to accommodate the application program in the external recording medium, and installing the application program in the external recording medium in the storage means once there is enough free storage area in the storage means to accommodate the application program. Thus, Suzuki '743 and Suzuki '139, in combination or individually, fail to teach or suggest all the limitations of claim 1.

Based on the foregoing discussion, claim 1 should be allowable over Suzuki '743 and Suzuki '139. Since claims 10, 13, 16, and 20 closely parallel, and recite substantially similar limitations as recited in, claim 1, claims 10, 13, 16, and 20 should also be allowable over Suzuki '743 and Suzuki '139. Further, since claims 2-5, 11, 12, 14, 15, 17-19, and 21-23 depend from one of claims 1, 10, 13, 16, and 20, claims 2-5, 11, 12, 14, 15, 17-19, and 21-23 should also be

allowable over Suzuki '743 and Suzuki '139.

Accordingly, it is submitted that the rejection of claims 1-5 and 10-23 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§ 103 Rejection of Claims 6-9

In Section 3 of the Office Action, claims 6-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki '743 in view of Furuya *et al.* (U.S. Patent No. 5,805,297; hereinafter referred to as "Furuya"). Claim 6 has been amended to clarify and to round out the scope of protection to which Applicant is entitled.

The steps of an information processing method in claim 6, as presented herein, include:

"An information-processing method comprising:

a judgment step of determining the size of a free storage area available in internal storage means of an information processing apparatus and the size of a storage area required for accommodating an application program loaded from an external recording medium into said internal storage means and determining whether or not said application program can be installed in said internal storage means;

a save step of saving an application program and/or a data file stored in said internal storage means to said external recording medium in order to allocate a new free storage area in said internal storage means when it is determined in said judgment step that said application program in said external recording medium cannot be installed in said internal storage means; and

an installation step of installing said application program in said external recording medium into said internal storage means after said new free storage area has been allocated in said internal storage means."

(emphasis added)

Accordingly, in one aspect of claim 6, the information processing method includes determining the size of a free storage area available in internal storage means of an information processing apparatus and the size of a storage area required for accommodating an application program loaded from an external recording medium into said internal storage means and determining whether or not said application program can be installed in said internal storage means; saving an application program and/or a data file stored in said internal storage means to said external recording medium in order to allocate a new free storage area in said internal storage means when it is determined in said judgment step that said application program in said external recording medium cannot be installed in said internal storage means; and installing said application program in said external recording medium into said internal storage means after said new free storage area has been allocated in said internal storage means.

Based on the foregoing discussion regarding claim 1, and since claim 6 closely parallels, and recites substantially similar limitations as recited in, claim 1, claim 6 should be allowable over Suzuki '743.

Furuya was cited for stating that “[p]rograms stored in the microfloppy disk or the hard disk which serves as the external memory 12 are read out or data in the memory 10 is deleted. Menu icons representing programs stored in the disk are displayed (step S2601). When one of the icons is touched on the touch panel 3 by the operator (step S2604), whether an empty area enough to store the designated program is available in the memory 10 is checked in step S2605. If YES in step S2605, this program is read out from the disk and loaded in the empty area (step S2606). If a sufficient empty area is not available in the memory 10, a shortage of a memory area is displayed.” *Furuya, column 10, lines 36-48*. Thus, Furuya fails to teach or suggest determining the size of a free storage area available in internal storage means of an information

processing apparatus and the size of a storage area required for accommodating an application program loaded from an external recording medium into said internal storage means and determining whether or not said application program can be installed in said internal storage means; saving an application program and/or a data file stored in said internal storage means to said external recording medium in order to allocate a new free storage area in said internal storage means when it is determined in said judgment step that said application program in said external recording medium cannot be installed in said internal storage means; and installing said application program in said external recording medium into said internal storage means after said new free storage area has been allocated in said internal storage means. Therefore, Suzuki '743 and Furuya, in combination or individually, fail to teach or suggest all the limitations of claim 6. Further, since claims 7-9 depend from claim 6, claim 7-9 should also be allowable over Suzuki '743 and Furuya.

Accordingly, it is submitted that the rejection of claims 6-9 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

Conclusion

In view of the foregoing, entry of this amendment, and the allowance of this application with claims 1-23 are respectfully solicited.

In regard to the claims amended herein and throughout the prosecution of this application, it is submitted that these claims, as originally presented, are patentably distinct over the prior art of record, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes that have been made to these claims were not made for the purpose of

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patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes were made simply for clarification and to round out the scope of protection to which Applicant is entitled.

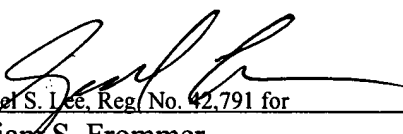
In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicant's representative at the telephone number written below.

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account 50-0320.

Respectfully submitted,

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